Muhammad Asghar (TS/SCI)

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Education

Carnegie Mellon University

Master of Science, Data Analytics and Management

Coursework: A/B Testing, Agent Based Modeling, Database Management, Decision Analytics, Large Language Models, Linux and Open Source, Machine Learning, Financial Statements, Negotiation, Leadership

City University of New York (CUNY) – Lehman College

Bachelor of Science, Computer Science & Bachelor of Art, Mathematics

SKILLS

Languages: Python, R, Java, C#/.NET, C/C++, SQL Tools: Bash, Git, Vagrant, Vim Management: JIRA, Confluence, Agile

EXPERIENCE

Senior Systems Engineer (TS/SCI)

Lockheed Martin

- Worked on the platform team, providing support and updates for infrastructure, software engineers, and QA as a DevSecOps Engineer.
- Developed ansible playbooks for automating software development for platforms such as HADES, OpenSearch, Keycloak, and internal tools. Setup monitoring and logging using Graylog Dashboards and implement infrastructure management with docker and podman.
- Automated Virtual Machines (VMs) setup in a Linux environment using bash scripts and Vagrant. Setup domain controllers and connected Linux servers to a Microsoft Active Directory server via LDAP.
- Compile Software Change Requests (SCR) for upgrades on high-side environments.

Emerging Technologies Analyst

NYC Mayor's Office for Technology and Innovation

- Research and deploy the City's Smart Cities pilot programs (air quality, flood detection, digital twins).
- Setup IoT devices on TheThingsNetwork and ArcGIS Velocity via the MQTT protocol and MQTT Explorer.
- Built https://testbed.cityofnewyork.us/ for showcasing ongoing and previous pilots with our partners.

Product Manager

NYC Mayor's Office for Economic Opportunity

- Selected as New America's Digital Impact and Governance Initiative (DIGI) Fellow on MyFile NYC. Scope, schedule, and perform cost management with our DHS contract. Lead a team of 5 in an agile environment.
- Worked closely with homeless intake shelter to analyze KPI during our pilot. Produced Product Requirement Document (PRD) for translation into 11 languages.
- Compiled reports of equitable access improvements in the housing market. Boosted engagement 200% via TV ad campaign. Reduced drop off rate in sign-on process from 65% to 30%.
- Prototype redesigned UI for better accessibility in mobile and web environments in Figma. Conducted A/B tests on redesigned UI.

Software Engineer and Scrum Master (TS/SCI)

L3Harris Technologies

- Containerized several .NET Core components (ELINT/SIGINT) for F15 warfighter jets reconnaissance missions. Built with Kubernetes, Docker, and Helm Charts in a GitLab repository leading to better CI/CD practices.
- Developed and architect an agnostic KML Service in C# for our GIS applications to be used across Cesium and Google Earth. Developed a database management system in PostgreSQL.
- Maintained test and development pipeline with TeamCity builds and triaged security issues in Fortify. Monitored performance with Prometheus. Configuration management with Puppet and pipeline integration with Kafka.

Valley Forge, PA

Jul 2024 - Present

Oct 2022 – Apr 2023

Brooklyn, NY

May 2020 Bronx, NY

May 2024

Pittsburgh, PA

Aug 2020 – Aug 2022 Rockwall, TX

Jun 2023 – Aug 2023 Brooklyn, NY

- Incorporated a Test Driven Development (TTD) mindset which improved unit, regression, and component tests coverage from 4% to 40% across all components.
- Facilitated scrum events (standup, backlog refinement, sprint planning, and sprint review) using Jira and Confluence for a team of 8 in an agile environment.

Data Science Civic Digital Fellow

US Census Bureau

- Selected as Coding It Forward's Civic Digital Fellow placed at the US Census Bureau.
- Spearheaded an audio-to-text pipeline environment at the Center for Behavioral Methods using Python, PocketSphinx, and nltk to convert and parse audio files for better analysis of the efficacy of citizens' inquiries.
- Completed data analysis using the removal of stopwords and special characters, text stemming, heat maps, and word clouds.
- Compiled a research paper on the findings and presented to the rest of the department.

Research

Automated Drone Inspections

AirLab. Robotics Institute

• Worked with Dr Sebastian Scherer's group to apply PCT and learning-based computer vision for identifying subsurface defects in KC135 aircrafts using UAVs. Aided the lab to apply for and receive the USAF SBIR/STTR grant.

Research Experience for Undergrads (REU)

ProHealth, Indiana University

- Worked with Dr Donald Williamson on his research in signal and speech processing. Captured audio in an anechoic chamber with a 7-channel multiarray microphone and automated the recording of 27+ hours of audio.
- Developed a deep learning Convolutional Neural Network (CNN) model for sound source localization using Keras.

Selected Projects

Agent Based Model Simulation of AI Impact on Workforce: Built state-action diagrams and trained a GPT agent with prompt engineering to simulate the impact of AI on the workforce.

Large Language Model for an AI Policy Chatbot: Built a Llama2-7b model to learn and synthesize information from domestic and international policy papers regarding AI. Fine tuned using LoRA and prompt engineering mechanisms. Evaluated performance with BLEU.

GameStop Short Squeeze Prediction: Built LSTM model based on Reddit sentiment analysis to forecast stock prices in 2021.

Last Mile Delivery Optimization: Problem formulation with objective function, decision variables, and constraints incorporating Gurobi and OptiGuide large language wrapper.

Analysis of Sleep Deprivation: Python deep learning models (Support Vector Machines, Logistic Regression, K - Nearest Neighbors, Random Forest, Decision Tree, PCA Dimensionality Reduction, Adaboost, Multilayer Perceptron)

Data Visualization and Analysis of East Coast Housing Market: Exploratory data analysis (EDA) with Python (numpy, pandas, matplotlib, seaborn) comparing Pittsburgh to East Coast cities.

LEADERSHIP

Mentor, CUNY Tech Prep Project Manager, Students Using Data for Social Good

Nov 2023 – Present Oct 2022 – Apr 2023

May 2019 – Jul 2019 Bloomington, IN

Jun 2020 – Aug 2020 Suitland, MD

Aug 2023 – Dec 2023

Pittsburgh, PA